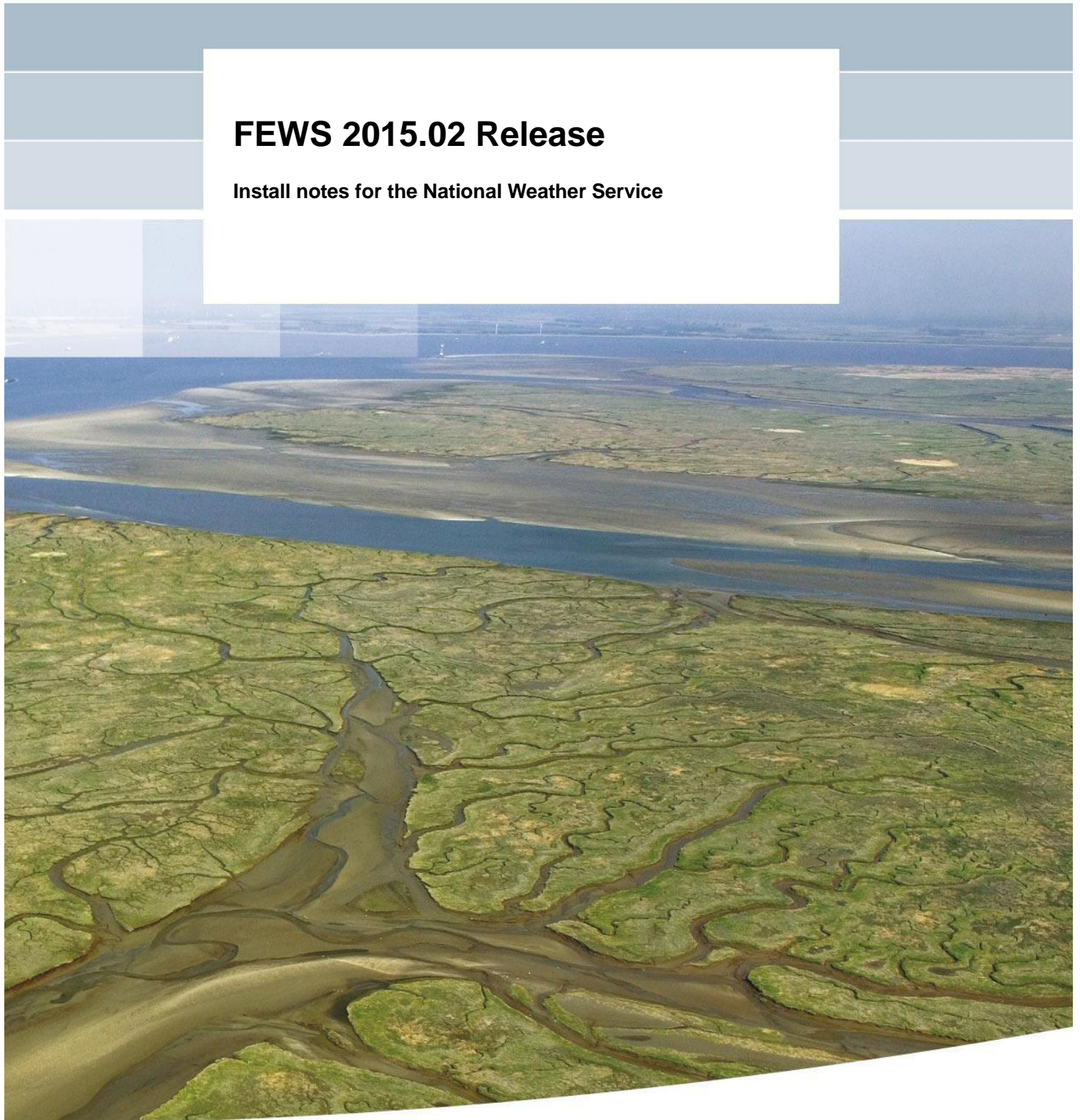


FEWS 2015.02 Release

Install notes for the National Weather Service



Prepared for:
National Weather Service

FEWS 2015.02 Release

Install notes for the National Weather Service

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NWC

Report

July 2016

Client	National Weather Service						
Title	Install notes for FEWS 2015.02 release						
Abstract							
Install instructions for upgrading the NWS implementation of FEWS, from release 2014.02 to 2015.02, and using ActiveMQ instead of JBOSS as JMS the provider.							
References							
	Author		Date	Remarks	Review		Approved by
	Lemans		Jan 7 '16	Beta release 1502			Welles
	Welles		Jan 28 '16	Including activeMQ			
	Balk		Feb 8 '16	activeMQ revisions			
	NWC		Jun 16 '16	Customized for RFC use			
	NWC		Jun 30 '16	Updated with comments from NWRFC			
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	NWC		Jul 20 '16	Update to Step 4 on Section 3.16			
Project number							
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Classification		None					
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1 Introduction

This FEWS release contains of:

- a FEWS stable 2015.02 build
- **install notes**
- release notes general
- release notes CHPS
- configuration update document

This document describes the procedure to update the existing client-server and stand-alone systems from the NWS2014.02 FEWS release to the NWS2015.02 FEWS release at all RFCs.

Note: This procedure cannot be used to set up an initial client-server system.

New compared to previous releases is the use of ActiveMQ as JMS provider, instead of JBOSS4. Also a java 7 needs to be updated to java 8.

This procedure assumes a dual-mastercontroller system update. Indicating which update activities can be skipped in case a single master controller update is conducted. It is necessary that all master controllers should be stopped and MC-MC synch tasks suspended during the update process of such a system, as instructed in Section 3.

Please verify that the procedures described in each section have been completed successfully before proceeding to the next section. Instructions for verification will be provided.

Any commands to be typed in will be displayed in a monospace font within a block.

```
$ ls -l /awips/chps_share/fews
```

Note that any command which changes the user id should be "`su -`", i.e. to include the minus sign, to force the reading of any environment variables for that particular user.

This release uses MC build 61856 with Delft-FEWS binaries base build 59855 and patch 61856.

IMPORTANT REMARKS: Configuration Updates

The updates and changes in configuration are documented in the configuration update document. As with all other configuration changes, the changes should be tested in an SA first before uploading to a live system.

2 Installation Procedure - Manual

2.1 Introduction

The installation procedure covers the following steps:

- Installation steps for individual system components
- Detailed instructions
- Reference to required files

2.2 General System Components Overview

This is an overview of the components to be upgraded. Detailed steps begin in Chapter 3.

Seq #	Component	Main activity	Required files (on the ftp)
Central / Server Components			
1	Central Database	Database update scripts 2014.03 to 2015.02	database_update_scripts/update_2014.03/* database_update_scripts/update_2015.01/* database_update_scripts/update_2015.02/*
2	Central Database	Postgres migration script from 9.2 to 9.3	Delivered separately via AWIPS
3	MasterController	Deploy MC including ActiveMQ installation	mc/fews-MC-stable-201502.activemq.61856.zip (Where 61856 is the mc release build number)
4	MasterController	Update configuration	
5	Admin Interfaces	Deploy AI	mc/fews-MC-stable-201502.activemq.61856.zip /admin_interface/fewsadmin.war
6	JAVA Build	Deploy new java version	java/jre1_8_0_45.tar.gz
Forecasting Shell Server Components			
1	Delft-FEWS binaries	Deploy/replace	delft_fews_binaries/bin/
2	synchChannels synchProfiles	Deploy/replace	synchronisation/
3	201502_patch.jar	Deploy	delft_fews_binaries /patch_placeholder/
4	mcproxy jar files	Deploy/replace	fss/mcproxy
System and Configuration Management			
1	Scheduled tasks	Reschedule MC tasks	
2	Schemas	Deploy/replace	delft_fews_binaries/bin/Delft_FEWS_schemas.jar
Operator Clients			
1	Delft-FEWS binaries	Deploy/replace	delft_fews_binaries/bin/

Seq #	Component	Main activity	Required files (on the ftp)
2	synchChannels synchProfiles	Deploy/replace	synchronisation/
3	201502_patch.jar	Deploy/replace	delft_fews_binaries/patch_placeholder/
Stand Alone			
1	Delft-FEWS binaries	Deploy/replace	delft_fews_binaries/bin

3 Stepwise Update Sequence

This section describes the steps in order to upgrade to the new version. They are listed in the next two tables and explained in the sections in the remainder of this document.

3.1 Single MC Upgrade Sequence

Seq#	Description	Purpose
0	Transfer distribution from FTP	Get a local copy from the installation package from the FTP Site. Instruction provided in email.
1	Upgrade of the Stand Alone for testing and then test with SA	Update snow analyses config if needed
2	Shut down main components	Stopping the main services running on the backend servers: <ul style="list-style-type: none"> • MasterController • FSS mcproxies
3	Java update	update the java/jre version to 1.8.0_45
4	Update of the Mastercontroller including the ActiveMQ installation	Update the MC to the latest version and install ActiveMQ as replacement for JBOSS
5	Update of the database	Running the database update scripts in order to get the latest tables, indexes and constraints Because this is a three build upgrade (incl 2014.03) you need to run three scripts
6	Update of the Admin Interface	Update the Admin Interface to the latest version
7	Start up main components	Starting the MasterController running on the backend servers
8	Update the Forecasting Shell Server components	Update the Forecasting Shell Server components (mcproxy, delft-fews binaries)
9	Start the Forecasting Shell Machines	Start the FSSs (mcproxies) in order to let the localDataStores be rebuilt and to get the latest config and data.
10	Update an Operator Client for testing purposes	Update a test OC to the latest version Open the application to test and work with the system running the latest version of Delft-FEWS and getting the latest config and data.

11	Open the Config Manager and upload configuration	Open the CM to upload new config updates if needed
12	Roll out update to all Operator Client	Update all OCs to the latest version
13	Schemas update	Update Schemas, extract from jar file
14	Update/verify live system configuration	Certain new features with configuration updates: see: FEWS-2015.02_for_CHPS-5.3.1_Config_Update_Document.pdf

3.2 Multi MC Upgrade Sequence

The references in the installation instructions are described for the MC00 system (chps1, 2 and 3).

FOR THE ALPHA and BETA BUILDS, ALL INSTALLS FOR THE LIVE SYSTEMS MUST BE DONE ON 789.

For the upgrade of MC01 this should be read as chps 4, 5 and 6.

It is recommended to print the next table and use it as a checklist.

Seq#	Description	Ref	Purpose	Check done
0	Transfer distribution from FTP		Get a local copy from the ftp Site. Instructions provided in email.	
1	Upgrade of the Stand Alone for testing			
Upgrade chps 1, 2 and 3 (MC00 system)				
2	Preparation of Central System for updating MC00		Stopping the main components chps 1, 2 and 3 <ul style="list-style-type: none"> • Stop MC00 • Stop all MC-MC Synchronisation tasks for all MCs 	
3	Java update to jre1.8.0_45		update the java/jre version to 1.8.0_45	
4	Update of the Mastercontroller including the ActiveMQ installation		Update the MC00 to the latest version and install ActiveMQ as replacement for JBOSS	
5	Update of the Database		Running the database update scripts in order to get the latest tables, indexes and constraints. Running the 9.3.9 Postgres Server migration scripts.	
6	Update of the Admin Interface		Update the Admin Interface to the latest version	
7	Update the Forecasting Shell Server components		Update the Forecasting Shell Server components (mcproxy, delft-fews binaries)	
8	Start Mastercontroller		Start the MC running the latest version	
9	Start the Forecasting Shell Machines		Start the FSSs (mcproxies) in order to let the localDataStores being rebuild and getting the latest config and data.	
10	Update an Operator Client for testing purposes.		Update a test OC to the latest version Open the application to test and work with the system running the latest version of Delft-FEWS and getting the latest config and data.	
11	Roll out update to all Operator Client		Update the OC to the latest version	
Upgrade chps 4, 5 and 6 (MC01system)				
12	Preparation of Central System for updating MC01		Stopping the main services chps 4, 5 and 6 <ul style="list-style-type: none"> • Stop MC01 	

			<ul style="list-style-type: none"> Stop all MC-MC Synchronisation tasks for all MCs 	
13	Java update		update the java/jre version to 1.8.0_45	
14	Update of the Mastercontroller including the installation of ActiveMQ		Update the MC01 to the latest version and install ActiveMQ as replacement for JBOSS	
15	Update of the database		Running the database update scripts in order to get the latest tables, indexes and constraints	
16	Update of the Admin Interface		Update the Admin Interface to the latest version	
17	Update the Forecasting Shell Server components		Update the Forecasting Shell Server components (mcproxy, delft-fews binaries)	
18	Start Mastercontroller		Start the MC01 running the latest version	
19	Start MC-MC Synchronisation on MC00		Synching forecast/import data to db00	
20	Start MC-MC Synchronisation on MC01		Synching forecast/import data to db01	
21	Start the Forecasting Shell Machines		Start the FSSs (mcproxies) in order to let the localDataStores being rebuild and getting the latest config and data.	
End of MC01 update				
22	Update/verify live system configuration		Confirm that various communication settings are properly specified	
23	Open the Config Manager and upload live system configuration		Open the CM to upload the latest configuration to the central system	
24	Schemas update		Update Schemas, extract from jar	

3.3 Unpack the distribution

In this section, the contents of this directory will be copied to the /chps_share directory, and from there parts will be copied to other locations.

1. Log on to `chps1` as user `fews`.

```
fews@chps1]$ cd /awips/chps_share/install/May2016/CHPS-5.3.1/
```

2. Untar the package (which was included in the CHPS-5.3.1 tar file 'pushed' by AWIPS):

```
fews@chps1]$ tar -xzf NWS201502_MC61856_OC61856.tgz
fews@chps1]$ cd NWS201502
```

3. To fix executable flags execute the following commands

```
fews@chps1]$ chmod +x delft_fews_binaries/bin/*.sh
```

4. Verify the results by checking permissions.

```
fews@chps1]$ ls -l delft_fews_binaries/bin/*.sh
```

5. Copy the fews.sh script in the current build to the new build, to make sure you don't lose the changes you have made to the `-Xmx` memory and firebird.conf settings.

```
fews@chps1]$ cp /awips/chps_share/fews/bin/fews.sh delft_fews_binaries/bin
```

6. Run the clean up script to remove unnecessary *.jar's and Windows libraries.

```
fews@chps1]$ cd delft_fews_binaries/bin
fews@chps1]$ ./cleanup_bin.sh
```

(Choose option 8: "ActiveMQ and Linux")

7. Unpack Java.

```
fews@chps1]$ cd ../../java
fews@chps1]$ tar -xzf jre1_8_0_45.tar.gz
```

3.4 Update of the Stand Alone application for testing purposes

Please Note: This is a generic procedure to update a Stand Alone version with the latest Delft-FEWS binaries. Exact paths will depend on the individual installations, only relative paths are given here.

The Stand Alone version is the only version where new binaries may be installed by an ordinary user and not the super user.

Create a test application with the new binaries

At an LX workstation as user `fews`

1. Backup the current FEWS binaries.

```
fews@lx]$ cd /awips/chps_share/sa/fews
fews@lx]$ mv bin bin.201402 (if any)
```

2. Create a symlink to the latest FEWS binaries in the release package.

```
fews@lx]$ ln -s /awips/chps_share/install/May2016/CHPS-
5.3.1/NWS201502/delft_fews_binaries/bin bin
```

3. Copy the `fews.sh` script in the current SA build to the new build to make sure you don't lose the changes you have made to the `-Xmx` memory settings.

```
fews@lx]$ cp bin.201402/fews.sh bin/.
```

4. If not available in the `fews` directory, copy a functional `??rfc_sa` application into this directory.

```
fews@lx]$ cp -dR /path/to/??rfc_sa .
```

5. Create a symlink to the latest Java 8 software in the release package.

```
fews@lx]$ cd /awips/chps_share/install/May2016/CHPS-5.3.1/NWS201502/java
fews@lx]$ cp jre1_8_0_45 java
fews@lx]$ cd /awips/chps_share/sa
fews@lx]$ ln -s /awips/chps_share/install/May2016/CHPS-5.3.1/NWS201502/java/java jre
fews@lx]$ cd ??rfc_sa
fews@lx]$ rm *patch.jar
fews@lx]$ cp -dR /awips/chps_share/install/May2016/CHPS-
5.3.1/NWS201502/delft_fews_binaries/patch_placeholder/201502_patch.jar .
fews@lx]$ rm -r export_config (if any)
```

Open the Stand alone application

Open the Stand Alone application and verify the following:

1. Use the menu **Help → About** and confirm that the build number is **61856** (or higher). This proves the correct build is used.
2. Test functionality as you see fit. Run segments etc.

3.5 Preparation of the central system for update

Follow the order of activities as described in section 3.2. Below you find the instructions how to carry out these activities

Stop MC-MC synchronisation (multiple MC systems only)

Check the Admin Interface to see if no tasks are running on the FSSs for this MC. If not, navigate to: *Forecast Tasks >> Scheduled Tasks* and locate the MC-MC synchronisation task(s). Click on the *Suspend* link in the right column for all available MC-MC Synchronisation tasks.

Stopping the Forecast Shell Servers and PiService

1. Log on to `chps3` as user `fews`.
2. Check the Admin Interface if a task is running at the FSS. If no task is running, the following steps can be taken:

```
fews@chps3]$ cd /awips/chps_local/fss/??rfc/FSS00/mcproxy
fews@chps3]$ ./mcproxy.sh stop
```

3. Repeat step 2 and 3 for each FSS instance (FSS01 etc.)
4. Verify that mcproxy processes are no longer running with:

```
fews@chps3]$ ps -ef |grep java|grep -i mclistener
```

(You should see no processes running.)

5. In case of a PI service, Stop PI service, remove the log files, patch file and local data and update the new patch file, similar to the instructions for updating the FewShell in Step 3.13 (no further PI service instructions in this section)

Stopping the Mastercontroller

1. Log on to `chps1` as user `fews`.
2. Stop the master controller.

```
fews@chps1]$ cd /awips/chps_local/mc/mcs/###mc00
fews@chps1]$ mcstop
```

should be replaced with the 3 letter RFC acronym (e.g. tar)

If `mcstop` complains about an incorrect MCID, you may need to check the `FEWS_MC_HOME` variable (`echo $FEWS_MC_HOME`) and export the correct variable.

The script should report that the mastercontroller components are being stopped.

3. Verify that mastercontroller processes are no longer running, either through the admin interface or with:

```
fews@chps1]$ ps -ef | grep java | grep mc00
```

This command should return no running processes; this should be replaced by `mc01` in case of stopping MC01.

Stopping Tomcat and JBoss

1. Log on to `chps1` as user `root`.
2. Stop Tomcat and verify that Tomcat is no longer running.

```
root@chps1]$ service tomcat stop
root@chps1]$ ps -ef | grep tomcat
```

3. Stop JBoss and verify that JBoss is no longer running.

```
root@chps1]$ service jboss stop
root@chps1]$ ps -ef | grep jboss
```

3.6 Archive and Remove JBoss Software

Store a backup copy of the binaries and configuration files on `chps_share`.

1. Create an archive of the JBoss software and configuration. Log on to `chps1` as user `fevs`.

```
fevs@chps1]$ tar -czvf /awips/chps_share/JBoss.4.0.4.tgz /awips/chps_local/jboss
```

2. Remove the JBoss software from the server.

```
fevs@chps1]$ rm -rvf /awips/chps_local/jboss
```

3.7 Update of Java Runtime to 1.8.0_45

The instructions below assume the current java version (like `1.7_71`) has to be replaced.

1. Log on to `chps3` as user `fevs`.
2. Check the Java version. If the Java version is **1.8.0_45**, move to step 6.

```
fevs@chps3]$ cd /awips/chps_local/
fevs@chps3]$ java/bin/java -version
```

3. Update the Java to version `1.8.0_45`.

```
fevs@chps3]$ mv java java_1.7_71
fevs@chps3]$ cp -r /awips/chps_share/install/May2016/CHPS-
5.3.1/NWS201502/java/jre1_8_0_45 java
fevs@chps3]$ rm -rf java_1.7_71
```

- Exit back to `chps1` and change to user `fews`.

```
fews@chps3]$ exit
root@chps1]$ su - fews
```

- Repeat step 3. Java in `/awips/chps_local` should now be up-to-date on both `chps1` and `chps3`.

- Exit to become user `root`

```
fews@chps1]$ exit
```

- Start Tomcat to verify the Java installation was successful. If the service starts successfully, stop the service in preparation for the database update later.

```
root@chps1]$ service tomcat start
root@chps1]$ ps -ef | grep tomcat
root@chps1]$ service tomcat stop
root@chps1]$ exit
```

(You should be fews on chps1 again)

3.8 Update of the MasterController

- Change to user `fews`

```
root@chps1]$ su - fews
```

- Make a note of the five-digit version number in the name of the file:

`fews-MC-stable-201502.activemq.XXXXX.zip`

```
fews@chps1]$ ls /awips/chps_share/install/May2016/CHPS-5.3.1/NWS201502/mc/
```

- In the commands below, replace `xxxxx` with the number noted in previous step (e.g. 61856). Unzip the master controller software into the `../builds` path.

```
fews@chps1]$ cd /awips/chps_local/mc/builds/
fews@chps1]$ mkdir mc.2015.02.XXXXX
fews@chps1]$ cd mc.2015.02.XXXXX
fews@chps1]$ cp /awips/chps_share/install/May2016/CHPS-5.3.1/NWS201502/mc/fews-MC-
stable-201502.activemq.XXXXX.zip .
fews@chps1]$ unzip *.zip
fews@chps1]$ chmod +x scripts/*.sh
```


4. Update the build symlink and remove previous log configuration files.

```
fews@chps1]$ cd /awips/chps_local/mc/mcs/###mc00
fews@chps1]$ rm build
fews@chps1]$ ln -s ../../builds/mc.2015.02.XXXXX build
fews@chps1]$ rm Log4jConfig*
fews@chps1]$ rm {*.out,*.err,*.up,*_log.txt*}
```

5. Update the `fews.master.mc.conf` file for ActiveMQ by editing it with your favorite editor (e.g. `vi`). The file is located in `/awips/chps_local/mc/mcs/###mc00`.

In the instructions below, replace `$YOURSERVERNAME$` with the name of your server.

For the following XML:

```
<jndicontext
  factory="org.jnp.interfaces.NamingContextFactory"
  provider="jnp://$YOURSERVERNAME$:1099"
  prefixes="org.jboss.naming:org.jboss.interfaces"/>
...
<queue>
  <root jndi="/CUSTOMER/REGION/MC00/" />
```

Replace or insert only the **bold** portion.

```
<jndicontext
  factory="org.apache.activemq.jndi.ActiveMQInitialContextFactory"
  provider="tcp://$YOURSERVERNAME$:61616?wireFormat.maxInactivityDuration=600000"
  prefixes="" />
...
<queue>
  <root jndi="dynamicQueues/CUSTOMER/REGION/MC00/" />
```

(NOTE: The **prefixes** attribute is now empty!)
(Make sure to change "MC00" when appropriate.)

6. Update the `<remotemc>` section in `fews.master.mc.conf` file for ActiveMQ by editing it with your favorite editor (e.g. `vi`). The file is located in `/awips/chps_local/mc/mcs/###mc00`.

In the instructions below, replace `$YOURREMOTESERVERNAME$` with the name of the remote MC server.

For the following XML:

```
<remote mcid="??RFCMC">
<jndicontext
  factory="org.jnp.interfaces.NamingContextFactory"
  provider="jnp://$YOURREMOTESERVERNAME$:1099"
  prefixes="org.jboss.naming:org.jboss.interfaces"/>
...
<queue>
  <root jndi="/CUSTOMER/REGION/MC01/" />
```

Replace or insert only the **bold** portion.

```
<remote mcid="??RFCMC">
<jndicontext
  factory="org.apache.activemq.jndi.ActiveMQInitialContextFactory"
  provider="tcp://$YOURREMOTESERVERNAME$:61616?wireFormat.maxInactivityDuration=600000"
  prefixes=""/>
...
<root jndi="dynamicQueues/CUSTOMER/REGION/MC01/" />
```

(Make sure to change "MC01" when appropriate.)

7. In the same file, there are a several additional edits required regarding current values for timeouts and so forth. Edit the following lines with the updated values in **BOLD**.

Change the synchdispatch timeout from 4 to **15**

```
<synchdispatch jndi="Internal/JMSQueue/SynchDispatch" timeout="15"/>
<sysrptdispatch jndi="Internal/JMSQueue/SysRptDispatch" timeout="15"/>
```

Change the mcproxy timeout from 4 to **15**

```
<mcproxy jndi="%F/JMSQueue/MCIncoming" timeout="15"/>
```

Change the monitor digesttime from 60 to **90**

```
<monitor sleeptime="1" digesttime="90">
```

Change the TM.Launcher maxsilencetime from 60 to **120**

```
<component cptid="TM.Launcher" maxsilencetime="120" process="TM"/>
```

- Update the `setenv.sh` script for ActiveMQ by editing it with your favorite editor (e.g. `vi`). The file is located in `/awips/chps_local/mc/mcs/###mc00`

```
APPSERVER=activemq
```

3.9 Install and start Active MQ

- Log into `chps1` as user `fews`
- Untar the ActiveMQ build

```
fews@chps1]$ cd /awips/chps_share/install/May2016/CHPS-5.3.1/NWS201502/activeMQ
fews@chps1]$ tar -xzf apache-activemq-5.11.1_forFEWS.tgz -C /awips/chps_local
```

- Rename the Apache ActiveMQ directory.

```
fews@chps1]$ cd /awips/chps_local/
fews@chps1]$ mv apache-activemq-5.11.1 activemq
```

- Add additional lines to `activemq` script for Red Hat's `chkconfig` to know what to do with it.

```
fews@chps1]$ cd activemq/bin
fews@chps1]$ vi activemq
```

(Add lines below in **bold** and save)

```
# For more information on configuring the script, see
http://activemq.apache.org/unix-shell-script.html
#
#
# Authors:
# Marc Schoechlin <ms@256bit.org>
# -----
# Added for Red Hat init.d support. (BDJM 02/03/16)
# chkconfig: - 91 05
# description: CHPS ActiveMQ Server
# -----
# Backup invocation parameters
COMMANDLINE_ARGS="$@"
EXEC_OPTION=""
...
```

5. Create a symlink in `/etc/init.d` to control ActiveMQ as a system service.

```

fews@chps1]$ cd activemq/bin (if not already in this directory)
fews@chps1]$ su
root@chps1]$ ln -s $(pwd)/activemq /etc/init.d/activemq
root@chps1]$ chkconfig --add activemq
root@chps1]$ chkconfig activemq off

```

6. Verify you can interact with ActiveMQ via the `service` command and test if ActiveMQ starts properly.

```

root@chps1]$ service activemq status
root@chps1]$ service activemq start

```

7. Verify ActiveMQ has started by using your browser to navigate to:
`$YOURSERVERNAME$:8161/admin` and login with `admin | admin`.
8. You should see the ActiveMQ console come up. If you navigate to the Queues page, you will see an empty page. Once the MC is started, this page will begin to populate.
9. Stop ActiveMQ in preparation for database update

```

root@chps1]$ service activemq stop
root@chps1]$ exit

```

(will put you back at user `fews`)

3.10 Update of the Central Database

This procedure will create and update database objects in the central FEWS database. In the steps below, please replace `<dbname>` with the database instance name of the particular RFC (without the angle brackets, e.g. `tardb00`) and `<dbuser>` with `fews00`. (Use `fews01` or `fews02` if you have configured your central databases to have different users.)

1. Log on to `chps2` as user `root`
2. Copy the database patch scripts from the release package

```

root@chps2]$ cd /var/lib/pgsql/fews
root@chps2]$ mkdir May2016
root@chps2]$ cp -r /awips/chps_share/install/May2016/CHPS-
5.3.1/NWS201502/database_update_scripts May2016/.
root@chps2]$ chown -R postgres:postgres May2016
root@chps2]$ chmod -R +x May2016/database_update_scripts/*

```

3. In order, run the database update scripts as user *postgres*

```
root@chps2]$ su - postgres
postgres@chps2]$ cd /var/lib/pgsql/fews/May2016/database_update_scripts
postgres@chps2]$ cd update_2014.03 && ./data_update.sh <dbname> <dbuser> && cd -
postgres@chps2]$ cd update_2015.01 && ./data_update.sh <dbname> <dbuser> && cd -
postgres@chps2]$ cd update_2015.02 && ./data_update.sh <dbname> <dbuser>
```

4. To verify success, run the following query in on the server:

```
postgres@chps2]$ psql -d <dbname> <dbuser>
psql> select * from versionmanagement;
```

5. This result should contain (next to other entries) the entries similar to:

componentid	versionid	entrydate
-----+-----+-----		
DATABASE_SCHEMA	v2015.02_2015<mdd>_0	<a very recent timestamp>

6. Exit *psql* and exit the session to *chps2*

```
psql> \q
postgres@chps2]$ exit
root@chps2]$ exit
```

3.11 Upgrade the Postgres Server to Version 9.3.9

Refer to the attached AWIPS installation documentation provided by the NWS.

3.12 Update of the Administration Interface

In the commands below, replace *xxxxx* with the number noted in step 1 of section 3.8.

1. Log on to *chps1* as user *fews*.

```
fews@chps1]$ cd /awips/chps_local/tomcat/fews
fews@chps1]$ cp
/awips/chps_local/mc/mcs/???mc00/build/admin_interface/fewsadmin.war .
```

2. Verify the *fewsadmin###.xml* file is still present (can also be named *<dbname>.xml*). If it is not in this directory, it can be found in the */awips/chps_local/tomcat/fews* directory.

```
fews@chps1]$ ls /awips/chps_local/tomcat/conf/Catalina/localhost/
```

3. Redeploy the Admin Interface.

```
fews@chps1]$ touch  
/awips/chps_local/tomcat/conf/Catalina/localhost/fewsadmin###.xml
```

4. Remove the old Admin Interface. (This ensures a proper refresh of the application)

```
fews@chps1]$ cd /awips/chps_local/tomcat/webapps  
fews@chps1]$ rm -rf fewsadmin_###mc00
```

5. Change to user *root* and start Tomcat

```
root@chps1]$ service tomcat start
```

6. To verify this step, start a browser on your local machine and navigate to
`http://chps1-###:8080/fewsadmin_###mc00`
(### should be replaced with the 3 letter RFC acronym, e.g. tar)
7. You should be presented with a log on screen. Log in (use your own or the default username and password: *admin/pass*)
8. At the bottom of the system status screen, hover over the copyright symbol with you mouse cursor. A tooltip should appear with the version number of the new Mastercontroller release. (Note that the status should all be “unknown”, except for JMS and Database, because the Mastercontroller has not been started, yet. Ignore the MC Version field which is not yet updated.)
9. Start ActiveMQ.

```
root@chps1]$ service activemq start
```

10. Keep the browser open to check the results of actions in the following section(s).

3.13 Update the Forecasting Shell Server Components

Check mcproxy processes before update:

Before updating the mcproxies, verify the mcproxy processes are still down:

1. Log on to *chps3* as user *fews*.

2. Verify that mcproxy processes are no longer running:

```
fews@chps3]$ ps -ef | grep java | grep -i mclistener
```

(This should return no processes. If it still does, please redo the actions specified in 3.5 concerning the mcproxies.)

Update the fews.master.mcproxy.conf file for ActiveMQ

In this section the mcproxy configuration will be updated

1. Change to the MCPProxy directory.

```
fews]$ cd /awips/chps_local/fss/??rfc/FSS00/mcproxy
```

(?? should be replaced with the 2 letter RFC acronym, e.g. ne)

2. Make edits in the fews.master.mcproxy.conf with your favorite editor (e.g. **vi**). In the instructions below, replace **\$YOURSERVERNAME\$** with the name of your server.

For the following XML:

```
<jndicontext
  factory="org.jnp.interfaces.NamingContextFactory"
  provider="jnp://$YOURSERVERNAME$:1099"
  prefixes="org.jboss.naming:org.jboss.interfaces"/>
...
<queue>
  <root jndi="/CUSTOMER/REGION/MC00/" />
```

Replace or insert only the **bold** portion.

```
<jndicontext
  factory="org.apache.activemq.jndi.ActiveMQInitialContextFactory"
  provider="tcp://$YOURSERVERNAME$:61616?wireFormat.maxInactivityDuration=600000"
  prefixes=""/>
...
<queue>
  <root jndi="dynamicQueues/CUSTOMER/REGION/MC00/" />
```

(Make sure to change "MC00" when appropriate.)

3. Repeat steps 1-2 for each other FSS instance (e.g. FSS01)

Update mcproxy

In this section the mcproxy jars and logging configuration will be updated.

1. Remove the current JAR binaries.

```
fews@chps3]$ cd /awips/chps_local/fss/??rfc/FSS00/mcproxy
fews@chps3]$ rm *.jar
```

(?? should be replaced with the 2 letter RFC acronym, e.g. ne)

2. Copy the latest JAR binaries into place.

```
fews@chps3]$ scp chps1:/awips/chps_local/mc/mcs/??mc00/build/mcproxy/* .
fews@chps3]$ rm Log4jConfig*
```

3. Repeat steps 1 - 2 for each other FSS instance (FSS01, etc)

Update FewsShell

1. Edit the amq_fss_synchConfig.xml file with your favorite editor (e.g. **vi**) to include the name of your server. The file is located in /awips/chps_share/install/May2016/CHPS-5.3.1/NWS201502/synchronisation/

Change **\$YOURSERVERNAME\$** to the name of your server in the following lines:

```
<jndicontext
  factory="org.apache.activemq.jndi.ActiveMQInitialContextFactory"
  provider="tcp://$YOURSERVERNAME$:61616?wireFormat.maxInactivityDuration=600000"
  prefixes=""/>
```

2. Replace **CUSTOMER/REGION** with **nws/??RFC**
3. Repeat step 1 for amq_oc_synchConfig.xml .
4. Remove old log configurations, datastore, and patch file.

```
fews@chps3]$ cd /awips/chps_local/fss/??rfc/FSS00/FewsShell/??rfc
fews@chps3]$ rm Log4jConfig*
fews@chps3]$ rm -r localDataStore
fews@chps3]$ rm *patch.jar
```

(?? should be replaced with the 2 letter RFC acronym, e.g. ne)
(The file 201502_patch.jar should have a size of ~1.7 MB)

4. Rename the existing `fss_synchConfig.xml` file so it will not be used, and copy in the new file.

```
fews@chps3]$ mv fss_synchConfig.xml fss_synchConfig.xml-notUsed
fews@chps3]$ cp /awips/chps_share/install/May2016/CHPS-
5.3.1/NWS201502/synchronisation/amq_fss_synchConfig.xml .
```

(The `amq_fss_synchConfig.xml` file will be uploaded to the configuration in a later step.)

5. Copy the new `patch.jar` into place.

```
fews@chps3]$ cp /awips/chps_share/install/May2016/CHPS-
5.3.1/NWS201502/delft_fews_binaries/patch_placeholder/201502_patch.jar .
```

6. Repeat steps 3 - 5 for each FSS instance (FSS01 etc.)

Update FEWS Binaries

```
fews@chps3]$ cd /awips/chps_local/fews
fews@chps3]$ mv bin bin_1402
fews@chps3]$ cp -dR /awips/chps_share/install/May2016/CHPS-
5.3.1/NWS201502/delft_fews_binaries/bin .
```

Note: Please do not install the current binaries under `bin_buildNum` with a symlink from `bin --> bin_buildNum`. This will not work.

3.14 Start MasterController

Now that the software has been updated the mastercontroller can be restarted.

1. Log on to `chps1` as user `fews`

```
fews@chps1]$ cd /awips/chps_local/mc/mcs/###mc00
fews@chps1]$ mcstart
```

If `mcstart` complains about an incorrect MCID, you may need to check the `FEWS_MC_HOME` variable (`echo $FEWS_MC_HOME`) and export the correct variable.

2. In the directory, `*.up` files should start to appear with a recent timestamp (verify with `ls -ltr`).
3. In the admin interface, the status of the mastercontroller components should change from *Unknown* to **Down** and, after some time, to **OK** (the FSSs' status will remain **Down**, until the

mcproxies have been restarted as part of the procedure in one of the next sections). The MC Version field in the system status page should display the current version.

3.15 Start FSSs

Starting Forecast Shell Servers

1. Log on to `chps3` as user `fews`

```
fews@chps3]$ cd /awips/chps_local/fss/??rfc/FSS00/mcproxy
fews@chps3]$ ./mcproxy.sh restart
```

2. If you are using Direct Database Access, repeat step 1 for each remaining FSS instance (FSS01, etc); otherwise, refrain from starting the remaining shells for now.

Building New Firebird Datastores (DDA users may skip.)

For particularly large FSS datastores, it's best to avoid the long downtime associated with rebuilding an individual datastore for each shell in use. Instead, build one datastore, shutdown the FSS, and copy the `local.fdb` to the remaining FSS's.

1. Start a browser on your local machine and navigate to:
`http://chps1-###:8080/fewsadmin_###mc00`
(### should be replaced with the 3 letter RFC acronym, e.g. tar)
2. Login as `admin`
3. Navigate to `Forecast tasks` → `Scheduled tasks` - one off task
4. Select the (FSS) `Rollingbarrel` workflow and submit with a start time 2 minutes from now. Confirm that FSS00 executes this task. It should rebuild the `localDataStore` for FSS00.
5. After the task is successful, shutdown FSS00 and copy the `localDataStore` to FSS01.

```
fews@chps3]$ cd /awips/chps_local/fss/??rfc/
fews@chps3]$ rsync -av --exclude "*.cbin" FSS00/FewsShell/??rfc/localDataStore
FSS01/FewsShell/??rfc/.
```

6. Repeat step 5 for remaining FSS instances (FSS02, etc).
7. Restart all FSS's.

```
fews@chps3]$ cd /awips/chps_local/fss/??rfc
fews@chps3]$ find . -name "mcproxy.sh" -exec {} restart \;
```

3.16 Update the Operator Client for testing purposes

Update binaries

1. On an LX workstation as user *fews*

```
anyuser@lx]$ cd /awips/chps_share/oc/
```

2. Change directory to user directory for the testing user. We using user *fews* as an example.

```
fews@lx]$ cd fews
```

3. If no *jre* link exists, please add one as follows:

```
fews@lx]$ ln -s /awips/chps_share/install/May2016/CHPS-  
5.3.1/NWS201502/java/jre1_8_0_45 jre
```

4. If *bin* is a directory, remove it so the test user can use the new binaries.

```
fews@lx]$ rm -r bin  
fews@lx]$ ln -s /awips/chps_share/install/May2016/CHPS-  
5.3.1/NWS201502/delft_fews_binaries/bin
```

5. In the OC's directory, remove files generated or used by the previous release.

```
fews@lx]$ cd ??rfc_oc  
fews@lx]$ rm *patch.jar  
fews@lx]$ rm -r export_config (if any)  
fews@lx]$ rm -r Import (if any)  
fews@lx]$ cp /awips/chps_share/install/May2016/CHPS-  
5.3.1/NWS201502/delft_fews_binaries/patch_placeholder/201502_patch.jar .
```

(If no *??rfc_oc* exists, please copy one from an existing OC into the directory)
(The file *201502_patch.jar* should have a size of ~1.7 MB)

Update Firebird Datastore Synchronization File

1. Backup the current *oc_synchConfig.xml* and copy the new ActiveMQ version into place.

```
fews@lx]$ mv oc_synchConfig.xml oc_synchConfig.xml-notUsed  
fews@lx]$ cp /awips/chps_share/install/May2016/CHPS-  
5.3.1/NWS201502/synchronisation/amq_oc_synchConfig.xml .
```

2. Replace `RFCMC00` in `amq_oc_synchConfig.xml` with your MCID
3. Replace `CUSTOMER/REGION` with `nws/??RFC`
4. Make sure `<defaultMcId>???MC00</defaultMcId>` is pointing to the upgraded MC you wish to test.
5. Compare your new and old `oc_synchConfig.xml` files to make sure the MCID and hostname information is correct.

For Direct Database Access Clients

1. Edit your `oc_clientConfig.xml` file using your favorite editor (e.g. `vi`). Change the `appServer` from `jboss` to `activemq`.

```
<appServerType>activemq</appServerType>
```

2. Add `dynamicQueues` to the `<root jndi="">` attribute.

```
<root jndi="dynamicQueues/CUSTOMER/REGION/MC00/" />
```

Upload Required Configuration Files, including updated Synchronisation files

It is important to use the upgraded OC which is now synchronizing with the upgraded MC.

1. Start the test OC in Configuration Manager mode.

```
fews@lx]$ ./bin/fews.sh ??rfc_oc cm &
```

2. Login to MC after the config manager has started and download the configuration by selecting the **[Download]** button.
3. Select the `rootConfigFiles` node. Deactivate **all files** except the `synchChannels.xml` and `synchProfiles.xml`.

NOTE: To deactivate, expand `RootConfigFiles` node, highlight each and click set inactive.

4. Copy the new `synchChannels.xml`, `synchProfiles.xml` and `amq_oc_synchConfig.xml` to this directory:

```
fews@lx]$ mkdir -p ??rfc_oc/export_config/Config/RootConfigFiles
fews@lx]$ cd ??rfc_oc/export_config/Config/RootConfigFiles
fews@lx]$ cp /awips/chps_share/install/May2016/CHPS-
5.3.1/NWS201502/synchronisation/synch* .
fews@lx]$ cp /awips/chps_share/install/May2016/CHPS-
5.3.1/NWS201502/synchronisation/amq_oc_synchConfig.xml .
```

5. Compare your existing `SynchProfiles.xml` and `SynchChannels.xml` with the new one. There are new parts for the new `ModuleRunTables`, so copy those parts to your file.
6. Copy any other required Config changes to the appropriate directories in this Config directory. See the Configuration document for those changes.
7. Go back to your Config Manager and select the top node of the Configuration tree.
8. Click Import and browse to the `export_config` folder:
`/awips/chps_share/oc/fews/rfc_oc/export_config/Config`. Import the changes in this directory and describe them as “root configuration updates FEWS 2015.02 release May 2016”
9. Select the root element in the tree on the left hand side and press **[Validate]**
10. Select **[Upload]** for the actual upload of the latest configuration changes.
11. Check the list of files to be uploaded and verify the ones you expect are there.
12. Wait for this process to finish and exit the Configuration Manager.

Open the Operator Client test application and conduct some testing

Open the Operator Client application and verify the following:

1. Use the menu “Help” → “About” and confirm that the build number is **61856** (or higher). This proves the correct build and patch is being used.
2. Login to the Master controller and confirm that the synchronisation to the OC works fine.
3. Open a web-browser and login at the Admin Interface.
4. Create a Manual Forecast to test the OC → FSS communications. Submit the forecast.
5. Once completed, confirm that it properly executed and returned the results to your OC.

Re-import ratings

The server upgrade may have resulted in disappearing of the ratings. Check if the ratings are still in the system and if not, just import them again.

1. Copy the NWS rating file to the FEWS Import/ratings directory.
2. In the Manual Forecast Display, run the ImportRatings workflow.

3.17 Log4JConfig.xml check at OCs

The existing Log4JConfig.xml does not have to be replaced, but the content of it differs from the standard generated one (by Delft-FEWS), which writes each synch activity to the log panel. This 'standard' Log4JConfig.xml will appear automatically if the system does not detect one. In order to have its functionality as before change the following (**bold**) part:

(typically from an LX workstation in /awips/chps_share/oc/<user>/??rfc_oc)
Line 42:

```
<category name="nl.wldelft.fews.system.synch" additivity="false">
```

3.18 PI-service health check

RFCs using the PI-service are requested to do a health check and to rebuild the local datastore.

1. Confirm that your PI-service uses a binary that is symbolically linked to /awips/chps_local/fews/bin.
2. Copy the 201502_patch.jar into your PI-service application directory (??rfc_pi).
3. Confirm that you kick off a RollingBarrel workflow every day in order to defrag the localDataStore.
4. Confirm that each MC has its own PI-service setup. A pi_synchConfig.xml file can only connect to one MC.
5. Confirm that your PI-service synchConfig.xml file has the appropriate ActiveMQ changes as performed for the OC and FSS synchConfig files.

```
<jndicontext
  factory="org.apache.activemq.jndi.ActiveMQInitialContextFactory"
  provider="tcp://$YOURSERVERNAME$:61616?wireFormat.maxInactivityDuration=600000"
  prefixes=""/>
...
<queue>
  <root jndi="dynamicQueues/CUSTOMER/REGION/MC00/">
```

(Only the **BOLD** prtions.)

6. Remove the existing Log4JConfig.xml such that the system can rebuild a new file. This new Log4JConfig.xml file will contain a setting that makes the system create a new log file every day.
6. Remove the localDatastore

7. To restart piseservices as *fews* on *chps3* do:

```
fews@chps3]$ cd /awips/chps_local/fewspiservices
fews@chps3]$ ./fews_piservice.sh ??rfc_pi restart
fews@chps3]$ ps -ef | grep fewspi
```

3.19 Roll out update to all Operator Clients

Once the tests with the Operator Client are satisfying, the FEWS binaries can be rolled out to all OCs. This is composed of a centralized update and a clean up of local OCs.

Update of Shared FEWS Binaries

1. Login as user *fews* to any LX workstation

```
fews@lx]$ cd /awips/chps_share/fews
fews@lx]$ mv bin bin_201402
fews@lx]$ cp -dR /awips/chps_share/install/May2016/CHPS-
5.3.1/NWS201502/delft_fews_binaries/bin .
```

Note: The binaries *must* be stored in a directory named *bin*. Do not attempt to change the name or use a symlink redirect to any other named directory.

Update of Shared Java Binaries

1. Login as user *fews* to any LX workstation

```
fews@lx]$ cd /awips/chps_share
fews@lx]$ mv java java_1.7_71
fews@lx]$ cp -r /awips/chps_share/install/May2016/CHPS-
5.3.1/NWS201502/java/jre1_8_0_45 java
fews@lx]$ rm -rf java_1.7_71
```

Note: The binaries *must* be stored in a directory named *bin*. Do not attempt to change the name or use a symlink redirect to any other named directory.

Verify FEWS and Java Binaries

1. Confirm that your OC directory has a *bin* symlink that points to */awips/chps_share/fews/bin*

```
fews@lx]$ ls -l /awips/chps_share/oc/fews/bin
```

If this is not the case, remove the directory or current symlink and make a symbolic link

pointing to the correct location.

2. Confirm that your OC directory has a `jre` symlink that points to `/awips/chps_share/java`

```
fews@lx]$ ls -l /awips/chps_share/oc/fews/jre
```

If this is not the case, remove the directory or current symlink and make a symbolic link pointing to the correct location.

Cleanup of Datastores, Patches, Client Directories.

For each LX workstation, remove the `localDataStore` directories as follows. You will need to know the location of your `localDataStores`. You can find this in the `oc_global.properties` file as the token `localDataStorePoolDir`.

1. If you aren't already, log on as user `fews`
2. Determine the location of your local data store by looking in the `oc_global.properties`

```
fews@lx]$ cd /awips/chps_share/oc
fews@lx]$ grep localDataStorePoolDir */*_oc/*_global.properties
```

3. Remove all `localDataStores` stored in the directories listed above. Most, if not all, will be in `/awips/chps_local/??rfc_oc`

```
fews@lx]$ cd <localDataStorePoolDir>
fews@lx]$ find . -name "localDataStore[0-9]"
fews@lx]$ rm -rvf /path/to/localDataStore
```

4. Repeat the previous step for each LX workstation.
5. For each Operator Client, remove the patch file, exported configurations and `Log4jConfig` files.

```
fews@lx]$ su - oper
oper@lx]$ cd /awips/chps_share/oc
oper@lx]$ cd oper/??rfc_oc
oper@lx]$ rm *patch.jar
oper@lx]$ rm -r export_config (if any)
oper@lx]$ rm -r Import (if any)
oper@lx]$ rm -r Log4jConfig*
oper@lx]$ exit
```

Firebird Datastore Clients

1. Backup the current oc_synchConfig.xml and copy the new ActiveMQ version into place.

```
oper@1x]$ rm oc_synchConfig.xml
oper@1x]$ cp /awips/chps_share/install/May2016/CHPS-
5.3.1/NWS201502/synchronisation/amq_oc_SynchConfig.xml .
```

2. Replace \$RFC\$MC00 in amq_oc_synchConfig.xml with your MCID
3. Replace CUSTOMER/REGION with nws/??RFC
4. Make sure <defaultMcId>??MC00</defaultMcId> is pointing to the upgraded MC you wish to test.

For Direct Database Access Clients

1. Edit your oc_clientConfig.xml file using your favorite editor (e.g. vi). Change the appServer from jboss to activemq.

```
<appServerType>activemq</appServerType>
```

2. Add dynamicQueues to the <root jndi=""> attribute.

```
<root jndi="dynamicQueues/CUSTOMER/REGION/MC00/">
```

3. Copy in the new patch.jar

```
oper@1x]$ cp /awips/chps_share/install/May2016/CHPS-
5.3.1/NWS201502/delft_fews_binaries/patch_placeholder/201502_patch.jar .
```

(The file 201502_patch.jar should have a size of ~1.7 MB)

4. Set the ownership for the user's OC directory

```
oper@1x]$ cd /awips/chps_share/oc
oper@1x]$ chown -R oper:fxalpha oper
```

5. Repeat steps 6 - 17 for each user

Note: If the installation was correct, the OC should be able to be started normally and connect to the mastercontroller.

Note: You will need to update the log4JConfig files for all users.

3.20 Repeat Upgrade for chps4, chps5 and chps6

Seq#	Description	Ref	Purpose	Check done
Upgrade chps 4, 5 and 6 (MC01system)				
13	Preparation of Central System for updating MC01		Stopping the main services chps 4, 5 and 6, including synchronisation again	
14	Point all OCs to the Upgraded MC		Update the synchConfig.xml file	
15	Java update		If not done already, update the java/jre version to 1.8.0_45	
16	Update of the Mastercontroller		Update the MC01 to the latest version	
17	Update of the database		Running the database update script in order to get the latest tables, indexes and constraints	
18	Update of the Admin Interface		Update the Admin Interface to the latest version	
19	Update the Forecasting Shell Server components		Update the Forecasting Shell Server components (mcproxy, delft-fews binaries)	
20	Start Mastercontroller		Start the MC running the latest version	
21	Start MC-MC Synchronisation on MC00 and MC01		Synching forecast/import data to db00 and db01	
22	Start the Forecasting Shell Machines		Start the FSSs (mcproxies) in order to let the localDataStores being rebuild and getting the latest config and data.	
End of MC01 update				
23	Migrate to the new ConfigRevisionSets		The use of the new way of storing revisions of (historical) config files require a migration of 'old style' revisions to the 'new style'	

3.21 Start MC-MC Synchronisation (multiple MC systems only)

Now that both the mastercontrollers are updated and running, the MC-MC synchronisation processes should be resumed such that the database is updated with the latest imported and forecast data

Start MC-MC synchronisation on MC00 (multiple MC systems only)

1. Start a browser on your local machine and navigate to:
http://chps1-###:8080/fewsadmin_###mc00
(### should be replaced with the 3 letter RFC acronym, e.g. tar)
2. Login as *admin*
3. Navigate to *Forecast tasks* → *Scheduled tasks*
4. Resume task MC-MC synchronisation

Confirm completion of MC-MC synchronisation

Continue with the next step once the MC-synchronisation is completed.

The completion of the task can be confirmed as follows:

1. Navigate to `Forecast tasks` → `Running tasks`
Once the task is MC-MC synchronisation task is removed from this list it should show successful in the task runs overview:
2. Navigate to `Forecast tasks` → `Scheduled tasks`
3. For task MC-MC synchronisation, select link 'task runs' in the last column of the table.

Repeat steps 1 – 7 for MC01

3.22 Update Schemas

The assumption is that the Apache webserver has been installed with a symbolic link to the schemas directory on `chps1`.

1. Log on to `chps1` as user `fews`

```
fews]$ cd /awips/chps_local/schemas
fews]$ rm -rf *
fews]$ cp /awips/chps_share/install/May2016/CHPS-
5.3.1/NWS201502/delft_fews_binaries/bin/Delft_FEWS_schemas.jar
fews]$ unzip *.jar
fews]$ rm *.jar
```

APPENDIX A - PostgreSQL 9.3.9 Installation Instructions

A.1 General Information

The CHPS 2015.02 installation provides an upgrade of the current database software to AWIPS PostgreSQL 9.3.9 which is part of AWIPS Build 16.2.1. This process will include the creation of a complete dump of the current PostgreSQL 9.2.7 database and an upload of the dump once the new AWIPS PostgreSQL 9.3.9 software is in place. This process will need to be run on each CHPS Database Server (CHPS2/CHPS5/CHPS8) and it will take approximately one hour per database.

A.1.1 Directory and Ownership Changes

The PostgreSQL data directory will change:

```
old data directory: /data/pg_data
new data directory: /awips2/data
```

In addition, the ownership of the directories will change:

```
old owner: postgres:postgres
new owner: awips2:fxalpha
```

A.1.2 Service Changes

The service command used to start, stop, restart, etc. PostgreSQL will change:

```
old usage: /etc/init.d/postgresql {start|stop|restart|reload|status}
new usage: /etc/init.d/edex_postgres {start|stop|restart|reload|status}
```

A.2 Pre-Installation Procedures

Complete Section A.2.1 through Section A.2.4 before beginning the core installation in Section A.3.

A.2.1 Shutdown ALL Site MC to MC Synchronization

Shutdown **ALL** MC to MC Synchronization processes until **ALL** databases have been upgraded and restored. ****CHPS Beta Sites, this need only apply to your MC02**

A.2.2 Shutdown the CHPS Processes

Check that all CHPS related processes are shutdown (PostgreSQL should be running) on the corresponding CHPS Database Server Cluster.

A.2.3 Shutdown Local Processes

Stop any local processes that might write to the CHPS PostgreSQL Database being upgraded.

A.2.4 Verify No Active Connections

Verify there are no active connections to the CHPS PostgreSQL Database being upgraded by running the following command as user `root` on the CHPS Database Server:

```
ps -ef | grep postgres
```

The output should be similar to the following:

```
postgres 2294      1  0 Aug10 ? 00:00:21 /usr/bin/postmaster -p 5432 -D /data/pgdata
postgres 2298 2294  0 Aug10 ? 00:08:37 postgres: writer process
postgres 2299 2294  0 Aug10 ? 00:00:20 postgres: stats collector process
```

There should be no entries which have Internet protocol (IP) addresses.

A.3 Installation Procedure for the PostgreSQL 9.3.9 Software Upgrade

1. Log on to the appropriate **RP** (yes, **RP**) as user **root**.
 - a. RP1 - CHPS2
 - b. RP2 - CHPS5
 - c. RP3 - CHPS8
2. Run the PgInstall control script on the appropriate **RP** by executing the following commands:

```
cd /data/fxa/INSTALL/chps_postgres_upgrade
./controlChpsPgInstall.sh
```

3. Output will be displayed on the screen as well as written to various log files in the following directory:

```
cd /data/fxa/INSTALL/a2logs
ls -alrth
cd (the most recent log directory e.g. 16.2.1-23)
ls -alrth
more (the most recent log file e.g.
controlPGInstall.20160620_184838.log)
```

4. The following **ERRORs** can be ignored:

```
psql:db_user_creation.sql:32: ERROR: database "nhordb02" does not exist
psql:db_user_creation.sql:37: ERROR: tablespace "nhordb02_dat01" does not exist
psql:db_user_creation.sql:38: ERROR: tablespace "nhordb02_idx01" does not exist
psql:db_user_creation.sql:41: ERROR: role "fews00" does not exist
```

```
psql:tbs_creation.sql:40: ERROR: tablespace "nhordb02_dat01" does not exist
psql:tbs_creation.sql:41: ERROR: tablespace "nhordb02_idx01" does not exist
```

5. The process will end with a message similar to the following:

```
Complete!
[2016-04-27 18:13:00]: INFO - Postgres 9.2 removal complete!
[2016-04-27 18:13:00]: INFO - Removing RPM artifact (/etc/init.d/postgresql)
```